IN THE CLAIMS

1-43. (Cancelled)

44. (Currently Amended) ~~A~~ An isolated peptide comprising sucrose synthase ~~comprising~~ of SEQ ID NO: 12.

45. (Currently Amended) ~~The~~ An isolated peptide consisting essentially of sucrose synthase ~~as claimed in claim 44 that consists essentially~~ of SEQ ID NO: 12.

46. (Currently Amended) The ~~sucrose synthase~~ isolated peptide as claimed in claim 45 that consists of SEQ ID NO: 12.

47. (Currently Amended) A method of preparing ADPG comprising the steps of incubating the isolated peptide ~~sucrose synthase~~ of claim 44 with ADP in suitable conditions for causing a reaction that produces ADPG followed by isolation and purification of the ADPG produced.

48. (Previously Presented) The method of preparing ADPG according to claim 47, comprising the steps of:

a) Providing 100 ml of the following solution for the incubating step and incubating for 12 h at 37°C:

Sucrose	1 M
HEPES, pH 7.0	50 mM
EDTA	1 mM
Polyethylene glycol	20%
$MgCl_2$	1 mM
KCl	15 mM
ADP	100 mM

b) Stopping the reaction by heating,

c) Centrifuging at 10000 g for 10 min with formation of a supernatant, and

d) Chromatographing the supernatant by HPLC, and then eluting and purifying the ADPG.

49. (Previously Presented) An assay kit for the spectrophotometric, fluorimetric or amperometric determination of sucrose comprising the sucrose synthase of claim 44.

50. (Previously Presented) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:

a) 2 units of sucrose synthase.

b) 2 mM of ADP

c) 2 units of ADPG pyrophosphatase of plant, animal or microbial origin

d) 2 units of PGM

e) 2 units of G6PDH

f) 0.5 mM of NAD(P)

g) 100 ml of reaction buffer: 50 mM HEPES, pH 7.0 / 1 mM EDTA / 20% polyethylene glycol / 1 mM $MgCl_2$ / 15 mM KCl

h) Previously filtered test sample.

51. (Previously Presented) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:

a) 2 units of sucrose synthase.

b) 2 mM of UDP

c) 2 units of UDPG pyrophosphatase of plant, animal or microbial origin

d) 2 units of PGM

e) 2 units of G6PDH

f) 0.5 mM of NAD(P)

g) 100 ml of reaction buffer: 50 mM HEPES, pH 7.0 / 1 mM EDTA / 20% polyethylene glycol / 1 mM $MgCl_2$ / 5 mM KC1

h) Previously filtered test sample.

52. (Previously Presented) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:

a) 2 units of sucrose synthase.

b) 2 mM of UDP

c) 2 units of UDPG dehydrogenase

d) 0.5 mM of NAD

e) 100 ml of reaction buffer: 50 mM HEPES, pH 7.0 / 1 mM EDTA / 20% polyethylene glycol / 1 mM $MgCl_2$ / 15 mM KCl

f) Previously filtered test sample.

53. (Previously Presented) A method of producing a transgenic plant that overexpresses sucrose synthase comprising the steps of inserting a genetic construct that contains and expresses the DNA fragment of SEQ ID NO: 11 in a suitable vector and transferring the genetic construction to the genome of a plant.

54. (Previously Presented) The method according to claim 53, wherein the vector comprises pSS5.

55. (Previously Presented) A transgenic plant comprising a genetic construct that overexpresses a sucrose synthase comprising SEQ ID NO: 12 such that the plant has a higher content of sucrose, G6P, ADPG and starch than a corresponding wild-type plant without the genetic construct.

56. (Previously Presented) The transgenic plant according to claim 55, wherein the transgenic plant has a level of sucrose synthase enzyme activity that is 2-10 times greater than a level of sucrose synthase enzyme activity in a corresponding wild-type plant without the genetic construct.

57. (Previously Presented) The transgenic plant according to claim 55, which is selected from the group consisting of a tobacco plant, a potato plant a tomato plant and a rice plant.

58. (Previously Presented) The transgenic plant according to claim 56, which is selected from the group consisting of a tobacco plant, a potato plant a tomato plant and a rice plant.

59. (Previously Presented) The transgenic plant according to claim 57, wherein the plant has leaves with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in leaves of a corresponding wild-type plant.

60. (Previously Presented) The transgenic plant according to claim 58, wherein the plant has leaves with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in leaves of a corresponding wild-type plant.

61. (Previously Presented) The transgenic plant according to claim 57, wherein the plant has at least one of a root, tuber or seed with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in a root, tuber or seed of a corresponding wild-type plant.

62. (Previously Presented) The transgenic plant according to claim 57, wherein the plant has at least one of a root, tuber or seed with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in a root, tuber or seed of a corresponding wild-type plant.